

Trend Study 25A-19-99

Study site name: Row of Pines - Cattle Exclosure .

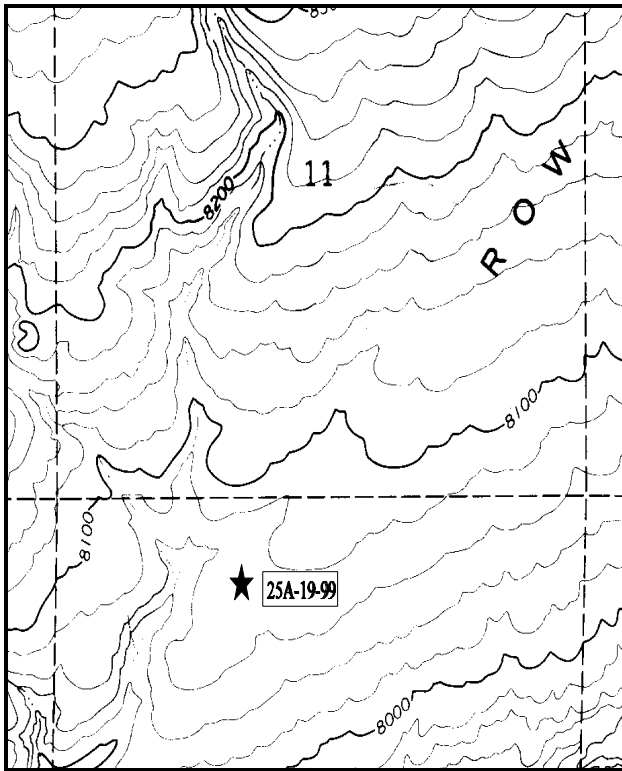
Range type: Sagebrush-Grass.

Compass bearing: frequency baseline 210°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1(11 and 95 ft), line 2(34 ft), line 3(59 ft), line 4(71ft).

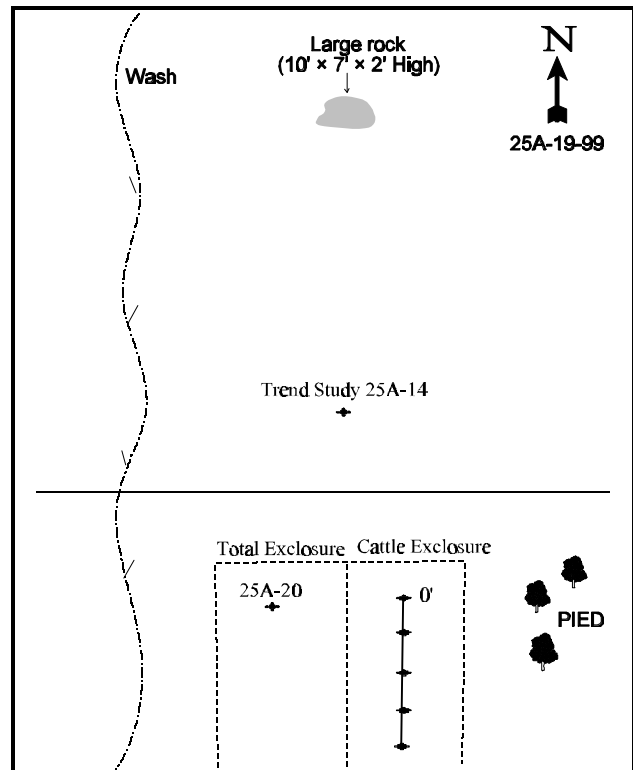
LOCATION DESCRIPTION

From the Chappell Cheese Factory northwest of Loa on SR 24, go west 2.6 miles to a side road on the north where the highway makes a sharp turn (0.95 miles west of mile marker #49). Take this road 0.65 miles and turn right after crossing a cattleguard. After 0.7 more miles, turn right at the fork and cross another cattleguard. Go 2.7 miles to another fork where you will again turn right. After ~60', turn right (east) and go 1.4 miles to an exclosure. The baseline runs down through the middle of the livestock exclosure (east side), with the 0 ft stake having browse tag #409 attached.



Map name: Loa, Utah

Township 27S, Range 2E, Section 14 .



Diagrammatic Sketch

UTM 4257898.994 N, 442713.387 E

DISCUSSION

Trend Study No. 25A-19

The Row of Pines Livestock Exclosure is a new trend study site established in 1999 inside the livestock exclosure. The exclosure was built in the late 1980's after the area was chained and seeded. A trend study (25A-14) was established in 1991 about 200 feet to the north of the exclosure. During the 1999 reading of the study outside of the exclosure, it was determined that data was needed within the livestock exclosure and the total exclosure. The area supports a sagebrush grass type which is nearly level (3-5% slope) and has a slight south aspect. Deer and elk use within the livestock exclosure was relatively heavy. Pellet group data estimated 48 deer and 58 elk days use/acre (119 ddu/ha and 143 edu/ha), most of which was winter use.

Soil depth is moderately shallow with an estimated effective rooting depth of just over 11 inches. Texture is a sandy clay loam to a loam with a neutral pH (7.0). Soil parent material is basalt. Phosphorus is marginal at 8.5 ppm. Values less than 10 ppm have been shown to limit normal plant growth and development. The soil surface is mostly a combination of pavement and bare ground with some evidence of soil erosion. Vegetation and litter cover are low at 22% and 12% respectively. However, due to the lack of slope, water erosion is not a major problem in this area.

The key browse species in this area is Wyoming big sagebrush which has an estimated density of 5,820 mostly mature plants/acre within the livestock exclosure. Utilization is moderate to heavy. Recruitment is poor with no seedlings and only 3% of the population consisting of young plants. Percent decadence is moderately high at 27% but more importantly, 63% of the decadent plants (980 plants/acre) appear to be dying. Even if only half of these plants actually die, there are only 160 young plants/acre to replace them. The only other common shrubs found in the exclosure are increasers, thinleaf low rabbitbrush and broom snakeweed with densities of 880 and 2,380 plants/acre respectively. Both populations are mostly mature and appear stable.

The herbaceous understory is dominated by grasses which are diverse for a Wyoming big sagebrush site. Common species include seeded crested wheatgrass and Russian wildrye, and native blue grama and bottlebrush squirreltail. Blue grama provides 37% of the grass cover while crested wheatgrass accounts for 26% of the grass cover and bottlebrush squirreltail provides another 19%. Other seeded grasses, intermediate wheatgrass and smooth brome, occur occasionally. Forbs are rare and produce less than one-half of 1% cover. The only fairly common species is low fleabane.

1999 APPARENT TREND ASSESSMENT

The soil trend appears stable due to abundant protective ground cover. However, rock and pavement provide most of this cover. Erosion is minimal due to the armored nature of the soil surface combined with the gentle terrain. Trend for the key browse, Wyoming big sagebrush, appears to be declining due to low recruitment combined with a high number of decadent dying plants. Utilization is moderate to heavy with most plants not currently producing seed. The increasers, thinleaf low rabbitbrush and broom snakeweed, appear to have mature and stable populations. The herbaceous understory is dominated by a variety of seeded and native grasses. The livestock exclosure contains more seeded grasses than outside. The low abundance of cool season perennial grasses outside of the exclosure and higher numbers of cool season grasses inside of the livestock exclosure indicates higher grazing pressure outside of the exclosure in the spring. Forbs are lacking here as well as outside of the exclosure.

HERBACEOUS TRENDS --
Herd unit 25A, Study no: 19

T y p e	Species	Nested Frequency '99	Quadrat Frequency '99	Average Cover % '99
G	Agropyron cristatum	130	52	2.66
G	Agropyron intermedium	1	1	.00
G	Bouteloua gracilis	91	37	3.86
G	Bromus inermis	10	3	.09
G	Elymus junceus	40	19	1.20
G	Oryzopsis hymenoides	10	6	.27
G	Sitanion hystrix	136	58	2.01
G	Stipa comata	1	1	.06
G	Stipa pinetorum	2	1	.15
Total for Annual Grasses		0	0	0
Total for Perennial Grasses		421	178	10.33
Total for Grasses		421	178	10.33
F	Androsace septentrionalis (a)	2	2	.01
F	Astragalus spp.	3	1	.00
F	Cryptantha spp.	3	2	.03
F	Eriogonum ovalifolium	1	1	.03
F	Erigeron pumilus	32	15	.15
F	Sphaeralcea coccinea	10	4	.04
F	Unknown forb-perennial	4	2	.03
Total for Annual Forbs		2	2	0.00
Total for Perennial Forbs		53	25	0.30
Total for Forbs		55	27	0.31

BROWSE TRENDS --
Herd unit 25A, Study no: 19

T y p e	Species	Strip Frequency '99	Average Cover % '99
B	Artemisia tridentata wyomingensis	91	8.23
B	Chrysothamnus viscidiflorus stenophyllus	28	.11
B	Gutierrezia sarothrae	67	1.06
B	Opuntia fragilis	6	.18
Total for Browse		192	9.59

BASIC COVER --

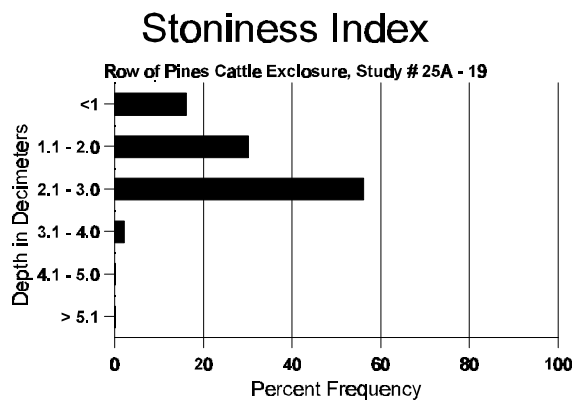
Herd unit 25A, Study no: 19

Cover Type	Nested Frequency '99	Average Cover % '99
Vegetation	305	21.47
Rock	278	12.68
Pavement	423	22.53
Litter	427	11.73
Cryptogams	5	.00
Bare Ground	420	22.28

SOIL ANALYSIS DATA --

Herd Unit 25A, Study # 19, Study Name: Row of Pines Cattle Exclosure

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
11.2	62.0 (12.3)	7.0	47.3	27.4	25.3	1.6	8.5	163.2	0.6



PELLET GROUP FREQUENCY --

Herd unit 25A, Study no: 19

Type	Quadrat Frequency '99	Pellet Transect Days Use/Acre (ha) '99
Rabbit	1	NA
Elk	24	87 (214)
Deer	22	71 (175)

BROWSE CHARACTERISTICS --

Herd unit 25A, Study no: 19

Field Unit 25A, Study No. 19																		
A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
Y	99	2	3	3	-	-	-	-	-	-	8	-	-	-	160		8	
M	99	6	112	87	-	-	-	-	-	-	203	-	-	2	4100	12 23	205	
D	99	1	29	36	3	-	9	-	-	-	29	-	-	49	1560		78	
X	99	-	-	-	-	-	-	-	-	-	-	-	-	-	940		47	
% Plants Showing '99		<u>Moderate Use</u> 49%			<u>Heavy Use</u> 46%			<u>Poor Vigor</u> 18%			<u>%Change</u>							
Total Plants/Acre (excluding Dead & Seedlings)														'99	5820	Dec:	27%	
Chrysothamnus viscidiflorus stenophyllus																		
Y	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	99	28	7	2	4	-	-	-	-	-	41	-	-	-	820	5 8	41	
D	99	1	1	-	-	-	-	-	-	-	-	-	-	2	40		2	
% Plants Showing '99		<u>Moderate Use</u> 18%			<u>Heavy Use</u> 05%			<u>Poor Vigor</u> 05%			<u>%Change</u>							
Total Plants/Acre (excluding Dead & Seedlings)														'99	880	Dec:	5%	
Gutierrezia sarothrae																		
S	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	99	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	99	115	-	-	-	-	-	-	-	-	115	-	-	-	2300	7 8	115	
X	99	-	-	-	-	-	-	-	-	-	-	-	-	-	80		4	
% Plants Showing '99		<u>Moderate Use</u> 00%			<u>Heavy Use</u> 00%			<u>Poor Vigor</u> 00%			<u>%Change</u>							
Total Plants/Acre (excluding Dead & Seedlings)														'99	2380	Dec:	-	
Opuntia fragilis																		
M	99	10	-	-	-	-	-	-	-	-	10	-	-	-	200	2 5	10	
% Plants Showing '99		<u>Moderate Use</u> 00%			<u>Heavy Use</u> 00%			<u>Poor Vigor</u> 00%			<u>%Change</u>							
Total Plants/Acre (excluding Dead & Seedlings)														'99	200	Dec:	-	